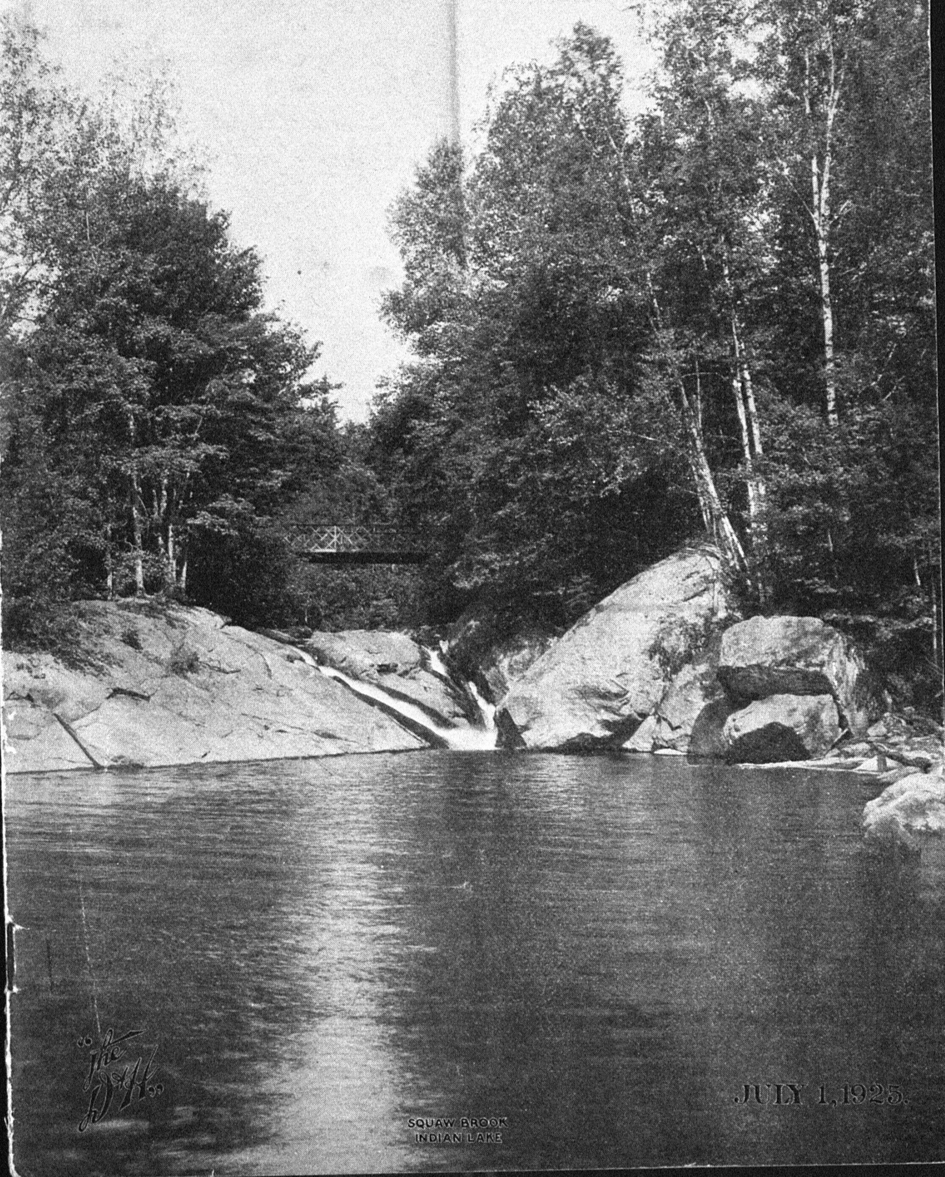
THE DELAWARE AND HUDSON COMPANY BULLETIN



JULY 1, 1925.

SQUAW BROOK
INDIAN LAKE

That You May Better Understand

the items contained in the Annual Report of our Company for the year, 1924, this issue contains, beginning on Page 5, President L. F. Loree's statement submitted with the report to the stockholders, while a recast of some of the statistical data is given below:

Our Company earned during the year:		
on merchandise	$16,314,917.42	
on coal	22,308,427.98	
on passenger service	3,845,647.00	
on mail and express	814,868.00	
on milk, switching, etc	1,171,873.00	
A total of		$44,455,733.40
on dining cars, telephones, baggage, storage, etc		557,080.00
on joint facilities		175.00
A total operating revenue of		$45,012,988.40
Our Company expended to earn this amount:		
11.84% on Maintenance of Way and Structures or	$5,328,910.05	
27.10% on Maintenance of Equipment or	12,200,671.84	
1.28% on Traffic or	574,235.31	
37.07% on Transportation or	16,688,257.30	
.64% on Dining Service, etc or	286,522.39	
3.71% on Stationery, miscellaneous expenses, etc. or	1,668,841.56	
.05% on Transporting employees and supplies or	19,512.27 Cr.	
Total of 81.59% or	$36,727,926.18	
With earned revenues of		$45,012,988.40
and expenses of		36,727,926.18
We had a balance to meet our other obligations and expenses of		$8,285,062.22
Our taxes, Federal and State, were		1,437,180.00
Leaving us		$6,847,882.22
For rental of the Albany and Susquehanna, the Rensselaer and Saratoga and other railways, we paid		1,799,845.00
Balance		$5,048,037.22
We paid interest to the holders of our bonds		3,731,614.00
		$1,316,423.22
Income from dividends and income from miscellaneous non-operating physical property		4,500,953.07
Net income carried to general profit and loss		$5,817,376.29
The stock holders were paid in dividends		3,784,500.00
Balance		$2,032,876.29
Of this balance there was used for:		
Equipment Trust Certificates	$265,400.00	
Sinking Fund	422,040.00	
Land for coal mines and reduced assets	405,873.89	
		1,093,313.89
And this sum is to be expended for improvements and general upkeep of the property		$939,562.40

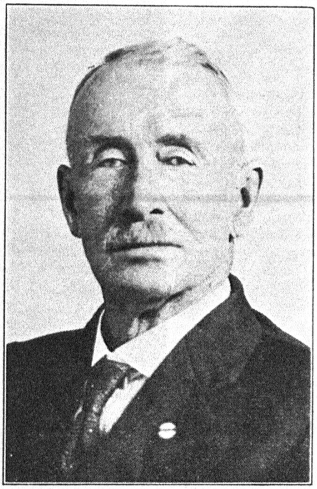
"the D&H" The DELAWARE AND HUDSON COMPANY BULLETIN "the D&H"

Vol. 5 Albany, N. Y., July 1, 1925 No. 13

Dazed By Fall, Dog Saved Him

Incident Near Comstock is Cited by Veteran Baggageman as Most Unusual of Any Experienced During Long Career

ENGINES and cars, like peas in a pod, are all alike to the average person who sees them made up in trains or standing idly on sidings, except on occasions when numerical designation and title of ownership may be particularly noted. But to the railroad employe who has been associated with their movements under all sort of road and yard conditions for long, long years, they have a real personality. Like the men with whom he works from day to day, and from year to year, they are his boon companions. And so it is that such men dread to think of the day when these relationships must be severed for they know that with it will be born remorse, and regret that their years of active service could not have continued on and on without interruption.



JAMES H. GALLAGHER

James H. Gallagher of No. 30 Willow Avenue, Schenectady, N. Y., retired train baggageman, is one who knows exactly what it means to be separated from a life that held him in its charm for an aggregate of more than fifty years. His ambitions today are as keen as they ever were, but without the opportunity to pursue them on the railroad, and without those at hand with whom he worked so long, he finds himself most lonesome at times. He was retired on pension, December 1, 1923.

He is "back home" once again, after having lived wherever duty called him throughout his many years of service, for he was born in Schenectady, November 6, 1852. Beside the father and mother, there were four children in the family—two daughters and two sons. They lived in North street, then called North Lane. His father, Thomas Gallagher, came from Ireland in 1845 and settled in Schenectady where he obtained employment with the Ellis Locomotive works, and later was with the New York Central. In 1861, he got work with our Company as a track hand at Ballston Spa, then known as The Branch and later as South Ballston, and moved there. His last work, however, was done as a crossing flagman at Peek street, Schenectady. He died twenty-four years ago.

During the winter of 1867, "Jim" did his first work on the railroad. With a gang of ten or fifteen men, for there were no snow plows then, he helped to open the road between Schenectady and Ballston Spa following a hard storm. Then for several years, due to various circumstances, his service was intermittent. In 1868, he was again employed on the track, carrying water for section men at Ballston Spa. In September, the following year, he got work with the New York Central as a brakeman on a gravel train operating between Schenectady and West Albany, and at times running to Amsterdam.

He left the Central in 1871 and went to New York City where, until 1873, he was engaged in Roach's Marine Boiler Works, at Avenue A and 9th street. Then he returned home and, in June, once again entered the service of the Company, this time as a wiper in the roundhouse near Pine street, Schenectady. He worked twelve hours a day, alternating between the day and night shifts each week.

The lure of the road called him from the roundhouse and he went firing for Noah King on a passenger train running between Schenectady and Saratoga Springs, making two round trips daily, except Sunday. In turn, he was employed on the Rutland freight, known in the schedules as Trains Nos. 29 and 30. These trips were made at night. At Rutland, the crew was required to make up its own train which, as a rule, comprised about thirty cars. The engineers with whom he became associated during this time were Charles Solloway and "Tom" Long. The latter, an uncle of George and Henry Long, well known locomotive engineers on the Saratoga division, he speaks of as one of the most efficient men on the road at that time, as clean and neat as a banker whether on or off his engine, and as agreeable a man as you might hope to meet.

In July, 1874, he went back to the Central as a brakeman on the "White Elephant," from Schenectady down to Athens, and at times working between West Albany and DeWitt. A year later, or in August, 1875, he returned to The Delaware and Hudson and was employed as a brakeman on a passenger train making two round trips daily between Saratoga Springs and Delanson. Conductor Balch, who held the run at that time, also conducted a large boarding house at the Spa. When air was installed on the trains in '78, he, being the youngest man on his crew, was forced to take a freight run.

It was shortly after this that he had a very narrow escape from death, and about the most thrilling experience of his entire career. He had left his caboose at Comstock to go over the train to the engine. After he had crossed the tops of several cars, the slack ran out and he was hurled to the ground. Not being missed, the crew continued on its way to Whitehall. It was snowing and cold, and he was dazed by the fall. A dog evidently discovered him and brought about his rescue. The story told by its owner, a farmer, is most interesting. The members of the family during the evening, for it was then dark, heard the dog whining and barking outside the house. The door was opened for him. Once inside, he at once set up a disturbance to be let out. When outside, he again tried to get in. Finally, the farmer, suspecting that something might be wrong, followed him. The dog would run ahead a few yards, and then back to his master. In this manner he was led to where "JIM" laid beside the tracks still in a dazed condition and unable to give an account of himself or of what had happened. He was removed to the station where he was given proper medical treatment. Then, for three months he was unable to work.

When he returned, he was assigned to passenger service and again became associated with Conductor Balch. Later he worked in the yards at Saratoga Springs where, the following summer (1878), he became yardmaster. This was during Saratoga's height of popularity and he recalls that often, in addition to the regular train service, upward of 100 cars of excursionists would be handled daily. The private equipment of the Vanderbilts, Astors and others of equal prominence, was frequently to be seen in the yards, as were the cars of various railroad presidents. After a year of this work, he returned to the Rutland freight as a conductor and ran extra as needed.

More experience as a yardmaster was acquired at Green Island beginning in June, 1880, He preferred train service and soon afterwards traded jobs with Albert Kelsey, who was running as a conductor between Green Island and Port Henry. F. A. Harrington, who was then the agent at the Island, however, caused his return to the yards and, in order to get released from such work, he resigned. He improved his lot but little, for he became an assistant night yardmaster for the New York Central in its 33rd street yards in New York City. While there he made the acquaintance of Chauncey M. Depew, then general superintendent. Three months later, he returned to Schenectady and obtained employment in the locomotive works as a blacksmith's helper.

Again, in July, 1884, he became a brakeman in our train service, running with "Bill" Bradt on a freight and accommodation train between Schenectady and Delanson. Later he was again promoted to a conductor and worked out of Delanson and Oneonta on the rounds. He left the service once more in December, 1887, but returned as a brakeman just two years later and thereafter was continuously employed by the Company. For a time, he worked with "Mike" Barrett out of Schenectady, and then, after holding one run and another, bid in a baggage car on old Nos. 9 and 10 out of Oneonta with Conductor Clark Couse. From then until he retired, all of his work was done as a baggageman, his last runs being made with Conductor Wilbur Potter on Trains Nos. 303 and 312.

Of all the jobs he held, he liked the work of a baggage car best. There, more than anywhere else on a train, you are your own boss, he declares, and, if methodical, can dispose of the

(Concluded on Page 15)

Reveiw of Annual Report

Various Items Appearing in the Financial Statement of the Company for the Year, 1924, as Submitted to Stockholders, Are Here Explained

THE capital stock of the Delaware and Hudson Company on December 31, 1924, was $42.503 000, there having been no change during the year.

The total funded debt was $74,174,400, an increase of $3 834.600. On December 10, 1924, there was issued $4 600,000 principal amount of The Delaware and Hudson Company's First and Refunding Mortgage Four Per Cent Gold bonds maturing on May 1, 1943, to provide funds for the discharge of various short term loans made to provide for capital expenditures and refunding $500 000 underlying First Mortgage Six Per Cent bonds of the Schenectady and Duanesburgh Railroad Company, which matured on September 1, 1924, and were paid. The Six Per Cent Gold notes issued to pay for 1,500 freight cars allocated to your company by the United States Railroad Administration were decreased by the payment of $265,400 which matured January 15, 1924.

The sum of $422,040, being one per cent of the par value of the first and refunding mortgage gold bonds outstanding on June 1, 1924, was paid during the year to the trustees under the mortgage securing that issue, making the total paid to December 31, 1924, $5.324 390. The sum paid was expended in additions and betterments to the mortgaged property in accordance with the trust agreement.

RAILROAD DEPARTMENT

OPERATING REVENUES—Gross operating revenues of your railway during the year 1924 amounted to $45,012 988, a decrease of $2,307.464, or five per cent, under 1923. This decrease resulted from differences in the volume and character of the traffic handled, there being no material changes in rates or divisions.

FREIGHT—Freight revenues decreased $1,926,667, or five per cent. Revenue from anthracite traffic decreased $1,131 275, and from bituminous coal $890,109, a total reduction in coal revenues of $2,021,384, or eight per cent. The revenue from all other freight increased $94,717. The reduction in anthracite revenue resulted from a greater amount of short haul movements into storage points and a reduction in the long haul traffic via Rouses Point, Rutland, and Mechanicville. Market conditions brought about increased deliveries to connections on the Pennsylvania division and to the New York Central Railroad with consequent short hauls. There was a reduction of eleven per cent in anthracite ton miles, which is equivalent to $2,340,150 of revenue, but this loss is partially offset by an increase in the earnings per ton mile of six per cent, or $1,208,875. There was an increase of 716.772 tons carried. The anthracite in storage at the end of 1924 was 722,462 tons greater than at the close of 1923, which approximates the increase in the tonnage transported. The average haul in 1923 was 144 7 miles and 122 miles in 1924. The reduction in bituminous coal revenue was principally due to the Boston and Maine Railroad transferring its fuel supplies to other routes.

The average per ton mile received from revenue freight was 1.104 cent compared with 1.052 cent in 1923, an increase of four and one-half per cent. The average car load of revenue freight decreased from 31.95 tons in 1923 to 29.75 in 1924, and there was a decrease of 13.97 miles in the average length of haul from 152.17 miles to 138.20 miles. Revenue freight transported aggregated 25,327,365 tons, of which traffic originating and terminating on your railroad contributed twenty-two per cent; traffic originating on your railroad and destined to points on other roads contributed forty-one per cent; traffic as to which your railroad performed an intermediate service contributed twenty-four per cent, and traffic received from other carriers and destined to points on your railroad contributed thirteen per cent. The total revenue tonnage was 13,656 tons less than in the previous year. Carload traffic increased 9,962 tons, while there was a decrease of 26,618 tons in less than carload traffic.

PASSENGER—Passenger revenues decreased $201 621, or five per cent, due entirely to a decline in travel resulting from the increased use of automobiles.

OTHER REVENUES—Receipts from mail transportation amounted to $231 577, a decrease of $3,371, or one per cent under 1923.

There was a decrease in express earning of $80.578, or twelve per cent. While there were some minor changes in rates, the reduction is almost entirely attributable to the smaller volume of business.

Demurrage receipts decreased $63.875, or twenty-five per cent.

Miscellaneous revenues increased $85 443 largely on account of increased receipts from the storage of anthracite.

Operating Expenses — Operating expenses amounted to $36,727,926, which is $2,624,314, or seven per cent less than in 1923; and $1.112 873, or three per cent more than in 1922.

Transportation expenses decreased $2,678,000. There was a smaller volume of traffic to handle and it was handled under more favorable weather conditions than those of 1923. Cost of fuel and other expenses decreased $1,325,000 largely by reason of the smaller quantities consumed. Although there was a decrease in the price of coal. the price level of other materials slightly increased. Increased wages were granted to enginemen and trainmen, hostlers and switch tenders, agents, telegraphers and towermen. The labor cost of conducting transportation was reduced approximately $1,310,000, sixty-five per cent of which, or about $870 000, resulted from curtailment in the amount of overtime worked.

Expenditure for maintenance of equipment was $913,000 less than in 1923, largely on account of improved conditions. Certain increases in wages made during the latter half of 1923 applied throughout the year 1924 and these, together with increases granted early in 1924, raised the labor cost approximately $250,000. There was also an increase of $360,000 due to the use of greater quantities of materials. On the other hand, increased efficiency, favorable weather and the satisfactory condition of the motive power permitted decreases in the hours worked which resulted in economies amounting to about $1,618,000.

A rather extensive maintenance of way program brought about an increase in expenses of $914,925. Approximately sixteen thousand more gross tons of new and relay rail and ninety thousand more cross ties were applied in 1924 than in 1923.

The increase in traffic expenses was brought about by the return of furloughed employes, an increase in forces at various soliciting stations and the establishment of an office in Atlanta, Georgia. Increased activities of the Traffic Department resulted in increased traveling expenses.

To summarize: Maintenance of way expenses increased $914,526, or twenty per cent; maintenance of equipment expenditures decreased $913,531, or seven per cent; traffic expenses increased $87,559, or eighteen per cent; transportation costs decreased $2,678,658, or fourteen per cent; miscellaneous operations decreased $14,723, or five per cent; and general expenses decreased $23,358, or one per cent.

Hire of Freight Cars—During 1924 your company paid $2 242,588 to foreign roads and $150,158 to private car lines and individuals for the use of their freight cars and received $2,988,154 for the use of its own cars by other railroads, the favorable balance being $595,409. In 1923 the balance was $262,635 against your railroad.

Taxes—Taxation took $1,437,180 out of your revenues, an increase of $317,822 or twenty-eight per cent, over 1923, and $762,196, or one hundred and thirteen per cent over 1914. The increase over 1914 comprehends an increase in income taxes of $203 994 or 657.90 per cent; in gross earnings taxes of $16,157, or 38.32 per cent; in capital stock taxes of $31,407, or 25 48 per cent; and in local property taxes of $510 638, or 106.71 per cent. Federal income taxes subtracted $235,000 from your 1924 income.

Between 1920 and 1924 the railways throughout the country have been able to effect reductions in operating expenses of nearly twenty-five per cent, amounting to approximately $4,300,000 per day. While these economies have been going on, taxes, far from being reduced, have increased from $808,000 to over $1,110,000 per day, an increase of over thirty-five per cent.

Additions and Betterments—During 1924 your company's investment in added and improved property was $1,377,220; property abandoned was valued at $1,311,791; a net increase in the road and equipment account of $65,429. The principal items are described below:

Work was continued on changing Bridge T-17.61 at Troy, N. Y., to provide greater clearance and channel width in the Hudson river at that point. At the end of 1924 approximately forty per cent of the proposed changes remained unfinished.

A new steel and concrete overhead bridge 0.8 mile north of East Worcester was completed in November, 1924, eliminating a grade crossing with the state highway. Construction of an undercrossing about one mile and one-quarter south of Greenfield and a new steel overhead bridge at Crescent were commenced during the year.

The weight of rails and capacity of other track materials were increased and the condition of the track was improved by the addition of a large number of tie-plates and rail-anchors.

The installation of a new 105-foot twin-span turntable at Oneonta, commenced in 1923, was completed during the year and will facilitate handling engines at that point. A 75-foot turntable was installed at Jefferson Junction to replace a 65-foot turntable.

Larger track scales were installed at Green Island and Cambridge. The new coaling plant at South Junction, commenced in 1922, was completed and put into service.

Lands were purchased, at Green Island and

(Continued on Page 13)

Engines—Past, Present and Future

*Use of Pulverized Coal of the Fineness of Talcum Powder is an Innovation of Great Importance Predicted by President L. F. Loree**

As a lad I read a story of James Watt seated at the fireplace, watching the boiling pot, noting the lid lifted by the expanding steam, and later working out upon this hint his great invention—the steam engine.

The story was, of course, without foundation, and is typical of much purely imaginative matter that is dished up to us. Sometimes I have thought that to no inconsiderable degree the inertia and closed mind of the public is due to the mass of misinformation that is gathered in youth, and the ill result goes even farther, since there is truth in the warning of the Greek philosopher "that we should not lie to the children, if for no other reason than that when they grow up they will not believe even the truths that we tell them."

I suggest we may set aside from this discussion the "Æolipiles" of Hero of Alexander, two hundred and fifty years before Christ, and the toys and experimental contrivances using steam that emerged from time to time until about two centuries ago.

Then, in 1712, Thomas Newcomen, an ironmonger or iron merchant of Dartmouth, in the County of Southampton, England, "fixed the first engine that ever raised any quantity of water, at Wolverhampton, on the left-hand side of the road leading from Walsall to the town, over against the half-mile stone." There is still in existence an engraving of it. Looking at this drawing one cannot but be surprised at the maturity to which the engine had been brought and the wonderful achievment that it really was.

And yet this engine was not a steam engine driven by the expansive force of the vapor of water, but rather an atmospheric engine, the condensation of steam (quite a different quality) being used to create a vacuum, and the weight of the atmospheric column contributing the driving force that depressed the piston and generated the motion converted by suitable mechanism into work.

The engine actuated a lifting pump, a working—or, as we now call it, a walking-beam communicating the pull of the piston to the pump-rods, the weight of the pump-rods in turn bringing back the piston to the top of the cylinder. The engine was able to work entirely of itself, making twelve strokes to the minute and raising ten gallons per stroke from a depth of 150 feet, the pumps being in two lifts of seventy-five feet each. The boilers were made of copper; the cylinders, of brass, were about two feet in diameter and six-foot stroke. The steam used had a pressure but little above the atmosphere, while the effective atmospheric pressure, having allowed for the several frictions, was perhaps six pounds per square inch.

Henry Beighton, the most distinguished civil engineer of his time, worked out tables of dimensions for work under different conditions, and by 1725 the diameter of the cylinder had grown to forty inches, the strokes had increased to twenty or twenty-five per minute, and water was being raised from a depth of 300 feet.

John Smeaton, a celebrated civil engineer, turned his attention, about 1765, to the atmospheric engine, and having collected data from some 100 engines, and conducted a series of experiments, set out rules for the best proportion of the parts. The effect of Smeaton's efforts, which were largely reflected in a decreased fuel consumption, is seen in comparing the results he obtained raising 9,450,000 pounds of water one foot high by a consumption of one bushel (eighty-four pounds) of coal, as against the average of the 100 engines he examined, which gave a performance of 5,590,000 pounds.

By now it was not uncommon to find cylinders seventy-two inches in diameter, worked with a nine-foot stroke, and making nine strokes per minute, the steam produced by three boilers, each fifteen feet in diameter, one placed beneath the cylinder and one on each side of the engine house. Great changes had occurred in the materials used in its construction and its use had been much extended.

The great sphere of the engine lay in the coal fields, where a supply of fuel was easily and cheaply obtained. With the remission of the excise duty on coal used for pumping engines, its field was extended to the tin mines of Cornwall. It was a labor saving device of the first importance. Of one it was said, "previous to the erection of this engine, fifty horses and twenty men, working night and day, had been required to raise the water from the mine, whereas the engine, with a single attendant, in forty-eight hours working, cleared the colliery of water for a whole week." The introduction of the atmos-

(Continued on Page 11)

The
Delaware and Hudson Company
BULLETIN

Office of Publication:
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PUBLISHED semi-monthly by The Delaware and Hudson Company for the information of the men who operate the railroad, in the belief that mutual understanding of the problems all have to meet will help us to solve them for our mutual welfare.

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Vol. 5. July 1, 1925 No. 13

What is Our Future?

WHITHER are we going and what is our future as railroad employes? These are questions we should consider with all seriousness. The trend of the times demands that we face this issue squarely.

If we will be candid—serious as to fact—we know that we, ourselves, always will be a controlling factor over our future in a matter of this kind. Public sentiment is another. But we can influence the latter, we can make it either favorable or unfavorable by efficient or inefficient service.

Management is doing its part in respect to improved equipment and the practice of the strictest operating economy. The influence upon the public is most noticeable. No fault is found with the employe body, but if employes would better appreciate these things and put forth an equal effort they would go a long way toward overcoming competitive elements which have made uncalled for inroads into the railroad business.

Individual effort in this direction is commendable, but collective effort is essential. If we can move our trains with greater dispatch and with less damage to contents; if we can handle our passenger trains with greater ease and satisfaction to the traveling public; if in the shops and roundhouses we can do our work so as to reduce road failures to a minimum, these being not only costly but embarrassing, we will go a long way toward maintaining public sentiment in our favor.

We should always put ourselves in the place of the patron. On one of our prominent roads engineers on passenger trains are being taken off their runs in order that they may ride the same trains as passengers and experience the jolts and discomforts occasioned by the careless handling of trains. When they return to their engines they do so with a better appreciation of what is constantly taking place in the coaches they are hauling. This is but one of many ways that may be followed in an effort to improve deficiencies in service.

This is a day of action. If we would keep abreast the times, we must act with dispatch. If we would keep our road in its proper place among other roads and retain for it the respect and appreciative consideration of the public, we must give quick, prompt and satisfactory service in every department, and on every occasion. From a selfish standpoint, at least, we cannot afford to do otherwise.

Business is Business

BUSINESS is business," the Little Man said,
"A battle where everything goes.
Where the only gospel is get ahead,
And never spare friends or foes.
'Slay or be slain,' is the slogan cold,
You must struggle and slash and tear,
For Business is Business, a fight for gold,
Where all that you do is fair!"

"Business is Business," the Big Man said,
"A battle to make of earth
A place to yield us more wine and bread,
More pleasure and joy and mirth;
There are still some bandits and buccaneers
Who are jungle-bred beasts of trade,
But their number dwindles with passing years
And dead is the code they made!"

"Business is Business," the Big Man said,
"But it's something that's more, far more;
For it makes sweet gardens of deserts dead,
And cities it built now roar.
Where once the deer and the gray wolf ran
From the pioneer's swift advance;
Business is Magic that toils for man
Business is True Romance."

"And those who make it a ruthless fight
Have only themselves to blame
If they feel no whit of the keen delight
In playing the bigger game.
The game that calls on the heart and head,
The best of man's strength and nerve;
Business is Business," the Big Man said,
"And that Business is to serve!"

—*Berton Braley.*

"There be three things which make a nation great and prosperous: A fertile soil, busy workshops, and easy conveyance of commodities from place to place."—*Lord Bacon.*

INSURANCE CLAIMS PAID
MAY, 1925

Death benefits	$17,650
Health benefits	6,279
Accident benefits	354
Accidental Death and Dismemberment benefits	1,200
Total and Permanent Disability benefits	624
Total benefits	$26,107

Evolution of Power and Power Transmission

(Continued from Issue of June 1st.)

Interval Combustion Engines

WHILE the practical development of the internal combustion engine is of rather recent occurrence, the idea is very old. In 1678, the Frenchman, Jean Hautefeuille, proposed an engine, using gunpowder in a cylinder fitted with a piston, and, as far as any records indicate, he was the first to propose the use of a piston in a heat engine, in the modern sense of the word.

There was no real progress in developing the modern gas engine, however, until the steam engine had been fairly well introduced, but strange as it may seem, the earlier ideas in regard to this form of engine were the result of manufacturing methods used and developed in the building of the first steam engines at the Soho works of Boulton & Watt, near Birmingham, England.

William Murdoch began as a mechanic with Watt, and later worked into positions of great importance with Boulton & Watt in the original steam engine manufactory at Soho. When he was superintendent of the plant he worked out the invention of gas-making and, in the year 1802 at the Soho works, he made the first large installation of a plant for illuminating purposes.

This new article soon directed attention to the possibilities of using it for power purposes, which in 1825 brought forth some experimental work. It might be well to mention here that in most of the early ideas and experiments pertaining to engines, the object was to produce in a cylinder, or under a piston, a vacuum by condensing low pressure steam, or by using gas, the burning of which, followed by its expansion and cooling, would produce the same result as the condensing of steam. Looked at in this way, it will be observed that the gas engine, or more properly the internal combustion, had its beginning along with the steam engine. Steam is a gas, and therefore the steam engine is a gas engine, but a gas engine is not necessarily a steam engine.

The first atmospheric gas engine to achieve any success in a commercial way, was the Otto and Langen invention, one of which was exhibited at Paris in 1867. In this engine the exploding gas forces the piston outwardly, and then the cooling of the gas with the outward movement of the piston creates a vacuum, which on the return stroke utilizes the atmospheric pressure. In 1860, Lenoir invented a gas engine that worked gas on both sides of the piston, and it had spark plug ignition, but it could not be kept cool.

Both of these engines, however, gave way to another principle which was described by Beau-de-Rochas in his French patent of 1862. This patent covers in detail the cycle of operations on which the modern gas engines operate. In 1876, Otto began the construction of engines based on the principles of this patent, and immediately they were successful. With the introduction of the automobile, and a few years later the aeroplane, this type of engine has received special development that, for certain lines of work, has placed it in a position of importance equal to the steam engine, in fact, in a good many ways it has taken the place of the steam engine.

The modern internal combustion engine is divided into two general types known as the single-acting four-stroke type and the single-acting two-stroke type.

In connection with the former type, there is, first, the suction stroke that draws the mixture of gas and air into the cylinder. Then the piston makes a return movement in the cylinder caused by the crank pin passing the center point, during which the mixture of gas and air is compressed preparatory to ignition. Just before the crank passes the center point opposite to the one just mentioned, the gas which is in compression under the piston, is ignited. The resulting force then becomes effective as the crank passes the dead center and allows the piston under this pressure to force it again to the other end of the cylinder. The valves by which this is all controlled, open at this stage of the operation so that as the piston makes the opposite movement again, the burned gasses are expelled to the atmosphere. Thus a complete cycle requires two revolutions of the crank shaft, during which one power stroke is obtained. This may be shown as follows:

Suction Compression	First revolution.
Power stroke Exhaust	Second revolution.

The arrangement just described is known as the single-acting four-stroke type, and is the kind commonly found on the everyday type of automobile.

In the two-stroke type, the arrangement provides for a power stroke every revolution of the crank shaft. This is done by an arrangement of ports at the outer end of the stroke at which point a mixture of gas and air is forced by light pressure into the cylinder. The piston then compresses this charge of gas, and as the inner position of the piston in the cylinder is reached, the ignition takes place. Then at this point the crank passes the center point and allows the pressure behind the piston to drive it back to the outer end, where the exhaust slots pass the burned gasses out to the atmosphere. Just as this is done another charge of gas is injected into the cylinders and the operation repeated. Thus an engine of this type has the following movements, beginning with the piston at the inner end of the cylinder with a charge of ignited gas mixture:

First stroke:

The first six-eighths is Power.
The next one-eighth is Exhaust.
The next one-eighth is Exhaust and Intake.

The total of the above is eight-eighths, or one stroke.

Second stroke:

The first one-eighth is Intake and Exhaust.
The next one-eighth is Exhaust—still open.
The next six-eighths is Compression.

The total of the above is eight-eighths, or one stroke.

From the foregoing description it will be seen that the total of the two strokes is one revolution of the crank shaft, in connection with which there has been one power stroke and also a complete cycle of events. This type of engine has no valves, except insofar as the piston itself acts as a valve by closing and opening the ports in the order given above as it passes back and forth in the cylinder.

The four-stroke type is used nearly altogether for automobile service, while the two-stroke type is popular for motor-boat and motor-cycle power units. The number of cylinders that can be operated together on the same crankshaft is, within certain limits of course, optional.

In addition to the ordinary gas engine there are two other types of internal combustion engines, although as far as their cycles of operation are concerned, they are all the same.

The first of these types is the Diesel engine invented by Diesel in 1890. In this machine the cycle arrangement, that is the order in which the intake, the compression, the ignition, and the exhaust occur with respect to the movement of the crank, is the same as any other gas or gasoline engine, except that during the intake portion of the cycle, nothing but air is taken into the cylinder. At the end of the compression stroke, an injection of oil is sprayed into the cylinder, which mixes with the compressed air and instantly ignites automatically, due to the high temperature of the air resulting from its compression. These engines are very heavy and work under high pressures, that is, about 450 to 500 pounds to the square inch, compression pressure.

The second type is called the semi-Diesel engine, and is similar to the Diesel except that the compression pressures are not high enough to automatically ignite the mixture as soon as the oil charge is injected. In this type the compression runs about 150 to 250 pounds to the square inch, and ignition is provided for by not cooling a certain portion of the cylinder head, which portion is maintained at a temperature high enough to ignite the oil spray as it enters the combustion chamber and mixes with the air. Preliminary use of a flame is necessary, however, in order to get these engines started, but the engine soon gets sufficiently hot to supply its own heat. This type of engine was invented in 1885 by Akroyd-Stuart, who in that year took out British patents. Although Diesel was second in the art, his name seems to have taken precedence.

In connection with the early development of the heavy oil type of internal combustion engine, the first practical machine using petroleum was that produced by Julius Hock in Vienna in 1870. About three years later, the first compression oil engine of Brayton was built in the United States, but the first of these types to meet with undoubted success was the Akroyd machine above described.

The heavy oil engine is rapidly coming to the front due to the fact that oil is the most concentrated form of energy known, and at the same time safe for convenient storage and handling, while ability to run on the cheapest kinds of fuel oils gives another great advantage. It is estimated that the average steam engine power plant in service today does not actually deliver as useful work more than 10 per cent of the heat of the fuel that is consumed, running as low as 5 per cent for a large portion of the plants, and as high as 20 per cent for the most efficient high-powered steam turbine plants, while the gas engine utilizes 20 to 25 per cent, and the oil engine as much as 32 per cent of the energy of the fuel consumed by it.

In view of this, it is possible that the reciprocating steam engine and perhaps the steam turbine itself will in time give way largely to the modern type of internal combustion engine.

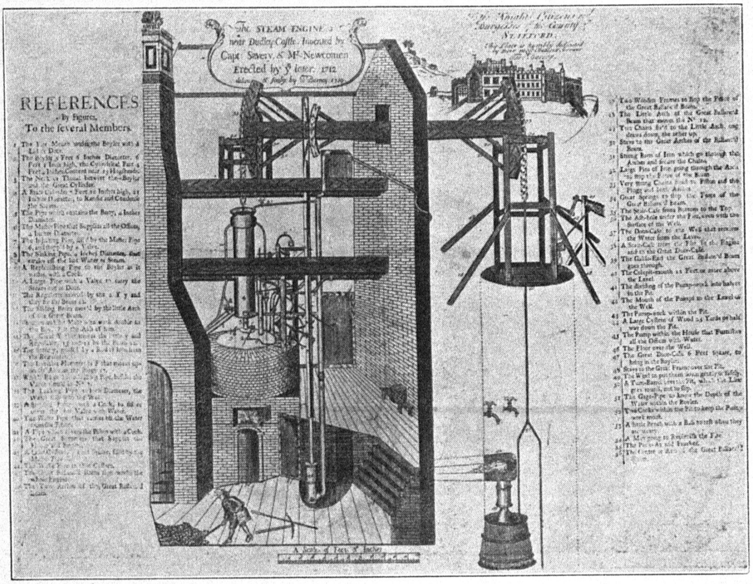
(To be continued in Next Issue.)

Engines—Past, Present and Future

(Continued from Page 7)

pheric engine did no less than to create a new era in the mining and commercial interests of Great Britain.

In 1757, James Watt was in the service of the University of Glasgow, Scotland, living and having a shop within the college walls under the title of "Mathematical Instrument Maker to the University." Here he enjoyed intercourse with professors and students interested in his branch of activities, and here he carried on many experiments with the force of steam.


The STEAM ENGINE near Dudley Castle. Invented by Capt. Savery, & Mr. Newcomen Erected by ye later. 1712
REFERENCES by figures, To the several Members.
A Scale of Feet & Inches

THE NEWCOMEN ENGINE OF 1712

The University owned a small model of Newcomen's engine, and in the winter of 1763-4 it was given to Watt to be repaired. Watt was surprised and interested by the great amount of steam consumed by the little engine, and set about seriously to investigate the matter. He found that the engine at each stroke consumed several times as much steam as would fill the cylinder, and that the large amount lost was because of its condensation against the cold sides of the cylinder.

Early in 1765 the idea occurred to him that the steam, instead of being condensed in the cylinder, might be drawn off into a separate vessel and there condensed. By this means the cylinder might be kept as hot as desired, the condenser as cold as necessary, no steam be wasted and a perfect vacuum obtained. At the time he secured his patent, on January 5, 1769, for "a new method of lessening the consumption of steam and fuel in fire engines," he estimated the saving of steam at one-half. Meanwhile, John Wilkinson, an eminent iron-founder, had introduced a new and vastly improved boring machine, so that a seventy-two-inch cylinder was not further distant from absolute truth than the thickness of a thin sixpence in the worst part. So when Watt and Boulton, of Soho, near Birmingham, England, put their engine on the market, in 1776, its superiority over Newcomen's in power and economy of fuel was soon demonstrated and the success of the invention assured. In Cornwall, in five or six years, all the engines except one had been altered.

The extent to which Boulton and Watt were dominated by the idea of fuel economy is clearly indicated in the terms they adopted in marketing their engine. They stipulated to receive the value of one-third of the fuel saved by each engine when compared with a common one (not with Smeaton's improved engine) burning the same kind of coal, to be paid annually or half-yearly, with an option of redemption at ten years purchase. In Cornwall a committee canvassing the situation found that the average duty of the Newcomen engine was 7,037,800 pounds raised one foot high by the consumption of a bushel (eighty-four pounds) of coal. Boulton and Watt's low-pressure engines performed an average duty of about 18,000,000 pounds. In 1798, one at the Herland mine performed 27,000 000 pounds, and Watt, visiting the mine on purpose to examine it, pronounced it perfect.

The modern development of the pump has been to secure variety of application rather than larger unit capacity. The advance in the latter respect does not seem large. Combining the present day ratings of a steam generating plant and a steam consuming plant, and based upon the use of eighty-four pounds of coal, I find a pump used by the Hudson Coal Company at its Loree Colliery lifts 55 000 000 foot pounds per minute, and that the vertical triple expansion condensing engine of the City water works at Cleveland, Ohio, lifts 105,000,000 foot pounds per minute. These examples may be taken as fairly indicating modern practice.

The first engines built by Boulton and Watt were atmospheric engines, the open-topped cylinders being surrounded by a steam case, but further economy was found by covering the top of the cylinder and admitting the steam above the piston. The operation of this steam engine of Watt's was as follows:

> "The piston being at the top of the cylinder when the engine was at rest, as was the case in the atmospheric engine, all the valves were thrown open and steam was blown through the engine to expel air from the cylinder, pipes and condenser, and filled every part with steam. The equilibrium valve was then closed, the steam and exhaust valves being left open. The injection water being admitted into the condenser the steam in the cylinder was destroyed, and a vacuum produced under the piston, whereupon the steam from the boiler, pressing upon its upper side, carried it to the bottom of the stroke. The steam and exhaust valves were then closed, and the equilibrium valve was opened, thus allowing the steam to press equally on the upper and under sides of the piston, and the weight of the pump rods, meeting with no resistance, carried the piston back to the top of the cylinder, the steam that was above passing to its under side in the meanwhile. The equilibrium valve was then closed, leaving the engine ready for another stroke. The steam was thus employed twice over, first above, and afterward under the piston, once to produce force, once to produce a vacuum."

On March 12, 1782, Watt patented his double-acting steam engine, using the expansive force of steam below as well as above the piston, and at once solved the difficulty of applying it successfully to produce a continuous rotative motion. This was the crowning improvement. Confined heretofore almost exclusively to raising water, it now entered upon a career of world-wide utility.

(To be concluded in Next Issue.)

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*An address delivered at the Seventeenth Annual Convention of the International Railway Fuel Association, Chicago, Ill., May 26, 1925.

Annual Police Inspection

THE annual police inspection was held at the Rensselaerwyck Rifle Range of the National Guard, at Rensselaer, N. Y., on Tuesday, May 19. Major John A. Warner, commanding the New York State Police, **COLONEL J. T. LOREE**, vice president and general manager, and **W. W. BATES**, assistant to the general manager for personnel, made the inspection, the officers being drawn up in military formation for the occasion. As a part of this program, **PATROLMAN HAROLD THORNTON** of Binghamton, was awarded the silver cup offered each year by Mrs. Loree for excellency in marksmanship. Major Warner and **COLONEL LOREE** spoke to the officers briefly relative to the responsibility of the work in which they are engaged and commended them upon the results of the inspection.

In the evening, the annual banquet of The Delaware and Hudson Police Association was held at the Hampton hotel in Albany. **CHIEF JENS K. JENSEN** was the toastmaster. **COLONEL LOREE** and **MR. BATES** were present as guests and speakers. **CAPTAIN REXFORD JOHLER** of Scranton, Pa., president of the association, briefly outlined the organization and told of its purposes and what it was trying to accomplish. Other members also spoke. Community singing and a recitation by **MISS LYDIA S. ANTHONY** of the headquarters staff, were the entertainment features until, following a brief business session, dancing was in order. Music was provided by the Car department orchestra from the Green Island shops.

A Slogan

A butcher in a certain town had read considerable about the "Milk from Contented Cows," and wanting to keep up with the times, he placed this sign in his windows: "Sausages from Pigs that Died Happy."—I. C. Magazine.

Review of Annual Report

(Continued from Page 6)

Whitehall for future development, at Schenectady for yard expansion, at Wadhams and Worcester for drainage purposes and at Afton for elimination of a private crossing.

The cost of maintaining Bridge 73.91 at Comstock and Bridge 77.03 at Whitehall was eliminated by filling in the old Champlain canal and removing the structures.

A "Balloon" track is being constructed at Lake George to facilitate the movement of trains.

Exercising an option in the contract made with the Air Reduction Sales Corporation in November, 1922, title in the name of your company was acquired to all the cutting and welding outfits in use on the property. This reduced the cost of all oxygen used thirty-five cents per one hundred cubic feet.

An experimental steam locomotive capable of maintaining a steam pressure of 350 pounds, or 100 pounds more than the maximum now in use on other railroads, was built by the American Locomotive Company according to plans devised in behalf of your company and was delivered in December, 1924. This locomotive has been christened "The Horatio Allen" in honor of the company's engineer, who, on August 8, 1829, piloted over its tracks the first locomotive ever operated in America, the "Stourbridge Lion." The new locomotive is now performing work satisfactorily under service conditions and is expected fully to justify the anticipations of improved efficiency that led to its development.

Four locomotives were altered from consolidation to switching type and fourteen additional M. & L. boosters were acquired. Improvements in motive power were made by applying steel bumper beams, flange oilers, power reverse gears, superheaters, adjustable driving box wedges, and steel cabs to a number of locomotives.

Gas lighting systems on passenger cars are being replaced by electric lights which are more economical.

Passenger coach No. 9, built in 1882 and used on the old Gravity railroad, was recovered and restored to its original condition and will be preserved as an historical relic. Caboose No. 10, formerly used on the Albany and Susquehanna Railroad, in which the first meeting of the Brotherhood of Railroad Trainmen was held, has also been restored to its original condition and placed in Neahwah Park, Oneonta.

One 100,000 pound capacity box-car was built to replace car No. 51208, destroyed in June, 1923. A large number of freight and passenger cars were improved by the application of such appliances as, camel door fixtures, steel ends, Hutchins roofs, metal sheathing straps, Davis steel wheels on produce cars, "Z" bar reinforced ends, 5" x 9" trucks and 10-inch air brake equipment, 10-inch plank on sides and ends of cars, reinforced underframes and draft gears.

Ten locomotives, 757 freight-train cars, and 101 units of work equipment were retired from service. Two passenger-train cars were converted into pay cars, and 122 freight-train cars and 27 passenger-train cars were converted into work equipment.

VALUATION—The suit to test the so-called "Tentative valuation" of your company's railroad was argued before the United States Supreme Court on November 19, 1924, and on January 5, 1925, a decision sustaining the District Court was rendered. Although techincally an adverse decision, the rule declared by the Court, that these tentative orders have no probative effect in any proceeding, is deemed strongly beneficial as strengthening the general position of the carriers in valuation and other proceedings. Further proceedings before the Commission, suspended pending this decision, may be resumed during 1925.

The cost of your company's valuation work, to the end of 1924, aggregated $691,429.55, of which $554,855.26 was charged to corporate operating expenses and $136,574.29 to the operating expenses of the United States Railroad Administration.

INDUSTRIAL DEPARTMENT—Approximately all the industries served by your company had an active and prosperous year. Ninety-seven new industrial plants were located along the tracks of your railroad, compared with seventy-three in 1923, and sixty-three in 1922. In addition, there were forty extensions to plants already established which compared with thirty-four in 1923. Fifteen new side tracks were authorized or built at an estimated cost of $45,372, of which $14,031 was borne by your company and $31,341 by the industries served.

Advocates of deepening the channel of the Hudson river to the head of navigation at Troy have been active during the past year in an attempt to secure Congressional legislation providing for sufficient depth to allow the passage of ocean-going liners. Your officers have assisted in these efforts as the realization of these hopes would promote efficient transportation and encourage development of the Capital District. Anticipating such development, some years ago, your Board authorized the purchase of several tracts of land in and about the District. These lands, in strategic locations, are being held awaiting the time when they can be used in aiding the expected expansion.

NEW ENGLAND DIVISIONS CASE—The Interstate Commerce Commission held several hearings during the year on the petition of the New England carriers seeking additional increases in divisions of freight revenue, and the petitions of certain carriers (including that of your company) seeking relief from the Commission's amended order. The record of testimony was closed at a hearing held on December 12, 1924, and dates from April 2, to May 21, 1925, have been fixed for filing briefs by the respective parties. In February, owing to changes and developments of importance in the New England situation, your company was impelled to file a petition asking the Commission to reopen the record for the purpose of further investigation, and this petition is now held under advisement.

ANTHRACITE RATES—The inquiry of the Interstate Commerce Commission with respect to rates on anthracite was concluded early in the year and briefs were filed.

EASTERN CLASS RATE INVESTIGATION—By an order entered on May 13, 1924, the Interstate Commerce Commission began an investigation of the interstate class rates of carriers operating in Official Classification territory with a view to determining whether such rates are reasonable under the Interstate Commerce Act. In a notice issued by the Commission on November 28, 1924, it is stated, among other things, that it is not the primary purpose of the inquiry either to add or subtract from the aggregate revenues of the carriers, but rather to adopt a class rate structure that will be as simple as it can be made with regard to the public interest and without undue prejudice. The Commission added that this did not mean that proposed rates would be rejected on the ground that they would increase or decrease aggregate revenues. Hearings were begun in Washington on February 4, 1925.

INVESTIGATION OF DIVISIONS OF FREIGHT RATES IN EASTERN DISTRICT—The Commission issued an order on December 9, 1924, directing a general investigation of the divisions of freight rates in the Eastern District exclusive of New England. No date for hearing has been set but the carriers in interest have received official requests for data.

GROUP INSURANCE AND PENSIONS—Your company's group insurance plan, whereby comprehensive protection is afforded to its employes against losses by death, illness, accident, and unemployment, has been continued in effect. During the year 1924, the third in which the plan has been in operation, premium payments amounting to $142,651.64 were contributed by your company. The amounts paid under the plan to employes and the beneficiaries indicated by them amounted to $242 222.57, classified as follows:

123	Death claims	$159,512.44
562	Health claims	65,720.22
59	Accident claims	4,804.29
3	Accidental death and dismemberment claims	3,600.00
11	Total and permanent disability claims	5,882.76
37	Unemployment claims	2,702.86
795	Total	$242,222.57

All of the claims, except those covering unemployment, were paid by the Metropolitan Life Insurance Company which underwrites this plan. On December 31, 1924, the pension roll contained 226 retired employes, a net decrease of six during the year. The amounts paid by the company to pensioners during the year aggregated $104,128.25.

STABILIZATION OF RAILWAY EMPLOYMENT—At a meeting of the Association of Railway Executives on September 18, 1924, a committee was appointed to formulate a plan of study of the possibilities of stabilizing railway employment. It is of the first importance to the carriers and their employes that employment shall be, as far as practicable, continuous, but no concerted movement towards the ascertainment of facts or the inauguration of corrective measures has heretofore been undertaken. Steady employment in actual transportation service depends upon the equilibrium of general industry. If the latter fluctuates widely transportation must of necessity move correspondingly. Nevertheless, existing conditions can be improved, especially in the fields of maintenance. Consideration by a subcommittee, which includes two members of the Interstate Commerce Commission and accounting representatives of the carriers, has led to inquiries which when completed are expected to supply a basis for further action.

FEDERAL CONTROL—The Director General of Railroads has submitted to the President of the United States a final report on the adjustment of claims of carriers whose properties were taken over and operated by the Federal Government on January 1, 1918, and ended with February 29, during the twenty-six months which commenced 1920. The admitted loss to the Government during this period aggregated $1,123,500,000 which, with the $536,000,000 estimated as being necessary to cover the expenses of the so-called "Guaranty Period" and $15.000 000 required to reimburse certain short lines under Section 204 of the Transportation Act, brings the liquidated cost of the experiment to an aggregate of $1,674,500,000; the losses in unliquidated damages to the properties and demoralized railway and public morale are uncalculated and incalculable.

GENERAL

CONCLUSION—The marked business activity of 1923 was substantially continued throughout 1924, but, although the railroads generally enjoyed improved net earnings, they did not receive their reasonable and proper share of the profits from the commerce in which they participated. In spite of abundant traffic and highly efficient and economical management, the railroads for the fifth successive period failed to earn the fair return ostensibly promised by the Transportation Act. Improvement may appear when the results of the last two years are compared with those of still less satisfactory years that preceded them, but such comparisons are the sole basis of an optimism which exists principally outside of railway circles. The failure of the carriers to earn the fair return apparently promised by the statute even during a period of real commercial prosperity is not less than a severe indictment of the existing system. If the carriers can barely sustain themselves during prosperous times they must certainly suffer dangerously during business depression.

The misconceptions that arise from attempts to turn economic problems, like those of railway rates and regulation, into political issues, and the dangers to which they inevitably lead, are illustrated by the agitation in regard to the railway rates applicable to agricultural products that began in 1923 and extended through the earlier months of 1924. Crop failures in the regions of surplus Spring wheat production, following in many instances close upon injudicious purchases of farm lands and equipment at excessive prices and extravagant resort to credit for these and even less desirable purposes, had created painful financial conditions in the agrarian sections directly affected. There was a great deal of suffering and urgent necessity for relief measures which were promptly and sympathetically inaugurated and prosecuted with success. A few politicians, mostly located in the grain-producing states, began a campaign to break down railway revenues, in which they attributed to the railways and the charges for railway services all the inevitable consequences of unfavorable weather, plant diseases, competition of Canadian grain producers, unsound purchases, and unwise indulgence. Happily the scene rapidly shifted; with the advent of 1924 there came improved American crops, Canadian rivalry at least temporarily became less effective, prices were more favorable, and, without further diminution of railway revenues, the general condition of agriculture again became one of prosperity. At the prices of July 1, 1924, the 1924 grain crops of the United States had an aggregate value of $4 291,928,000, and the cotton crop a value of $1,741,491,000, making a total never approximated in the country's history except in the single year, 1920, when the purchasing power of money was at its lowest. With improved conditions, the attack upon the railways became less alluring and those for whose deception it was undertaken were not slow to realize that the conditions under which they suffered in 1923 and the vastly improved conditions which they enjoyed in 1924, had both occurred under the same schedules of railway charges. In short, the reactions were decidedly unfavorable to those who had sought to obtain political advantage by treating a plainly economic problem as though it were one to be solved by political methods. Nevertheless, until the economic situation became definitely promising, the subversive movement gathered strength and momentum, and its eventual disintegration appears more as the result of the unrelated circumstances that brought renewed prosperity than as that of recognition of the fundamental principle that one great industry cannot derive lasting benefit at the cost of injustice to another great industry which operates in its aid and service. Recollection of this incident must continue to temper the confidence of investors in railway enterprise, at least until there is a general acquiescence in the sound and necessary principle that excludes politics from strictly economic fields.

By order of the Board of Managers,

L. F. Loree
PRESIDENT

Dazed by Fall, Dog Saved Him

(Continued from Page 4)

baggage and mail without confusion. It is not an easy job to be a conductor, he observes, as he cites the necessity of assuming the responsibility for the actions of the other men.

In May, 1875, he married Miss Mary Fogarty of Schenectady, and to them seven children were born and of whom only one, Mrs. Anna Bradley, is living. It is with her that he has made his home since he left the road, Mrs. Gallagher having died August 30, 1907. He is a member of St. Luke's Roman Catholic church of Schenectady, and of The Delaware and Hudson Veterans' Association. A brother, Peter Gallagher, now a farmer living near Cohoes, at one time was employed as a brakeman by the Company.

Squaw Brook

SQUAW BROOK is one of the feeders that helps to keep Indian Lake, famous haunt of the Iroquois, one of the most beautiful stretches of inland water in the Adirondacks. The name is suggestive of Indian lore and the tale which has been handed down from generation to generation is to the effect that the wife of Benedict Sabael, the first Indian settler thereabouts, who found his way south from the Province of Quebec in 1765, lies buried beneath the waters of the brook. Sabael is supposed to have been murdered by his grandson, a quarrelsome fellow, in 1855.

North Creek, the northernmost terminal of our North Creek branch, is the railhead for Indian Lake and Indian Lake village, seventeen miles west.

Clicks from the Rails

And don't you really believe—

* * *

That if the railroads are to continue—

* * *

To share the faith of the public, their employes—

* * *

Must heartily cooperate in the giving of prompt and efficient service.

* * *

There were 54,657,000 fewer passengers on railroad trains in 1924 than in 1923, according to the Interstate Commerce Commission. This resulted in a reduction of passenger revenues from $1.147.423,486 in 1923 to $1,075,954.383 in 1924.

* * *

Twenty-two sleepers and a kitchen car were rushed by the Pullman company from Chicago and St. Louis to the scene of the cyclone at Murphysboro, Ill., on the afternoon of March 18, last, and used to house and feed victims of the disaster.

* * *

Two well known railroad presidents will, according to reports, retire from active service this year. They are Samuel Rea of the Pennsylvania system, and William H. Truesdale of the Delaware, Lackawanna and Western.

* * *

Nearly 30 per cent of all income producing endowments of the principal colleges, universities and technical schools throughout the United States are invested in steam railway stocks and bonds, the total book value of which amounts to $531,696.687.

* * *

In the steadily increasing tax burden, the railroads face an obstacle which cannot much longer be overcome by operating efficiency. Unless a halt is called, railroad rates must be advanced to provide the money to pay taxes. The situation demands the help of every citizen, whose duty it is to see that the taxes he pays are wisely expended, and with the same system and economy which should characterize any business enterprise.

* * *

If the author of the Sand House Column in the *Railway Review* may be taken seriously, there was a day, some twenty or more years ago. when the Pennsylvania railroad issued an order that all women wearing red flannel petticoats and trespassing on the right of way be arrested. They were delaying the movement of trains, the crews mistaking their petticoats for danger signals. That was when practically every immigrant woman wore a red skirt and shawl over her head.

* * *

A true appreciation of just what railroad service means to our country, was voiced by Governor Duncan of Illinois in his message to the legislature in 1835, when he said: "When we look abroad and see lines of railroads penetrating every section of our sister states, the locomotive bearing in triumph the rich productions of the interior to the sea, thus annihilating time and space, what patriot bosom does not beat high with laudable ambition to give Illinois her full share of these advantages."

* * *

"The first word 'United' in United States, is made possible by the best transportation system existing anywhere in the world today," R. H. Aishton, president of the American Railway Association, told the Bond Club of New York, in discussing "Public Interest in Transportation," at a recent luncheon. "Railroad transportation," he added, "is no longer a theory; it is the principal factor in our economic welfare. With its web of over 413,000 miles of railway tracks serving agriculture, industry and every phase of commercial life, transportation more than any other public effort has made the nation what it now is. We say United States and we mean just that."